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BARGE DUMPING OF WASTES IN THE NEW YORK BIGHT**

C.T. Wezernak and F.J. Thomson*

SUMMARY

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A variety of municipal and industrial wastes are disposed of by barge dumping in the waters of the New York Bight, including sewage sludge and acid wastes. Disposal of these wastes by barge dumping produces surface films and waste fields whose fate and effects are not completely defined.

An important element in present and future programs for managing ocean disposal of wastes at this and other locations is the requirement for a monitoring system which will (1) document authorized discharges to verify compliance in terms of discharge location, (2) detect unauthorized dumps or accidental discharges, and (3) provide data regarding the movement of wastes. Monitoring systems are required not only for the detection of small spills and discharges but also for monitoring large scale processes and phenomena. The present investigation is an example of the latter.

The specific objectives of this investigation are as follows:

1. Provide data regarding the surface spread and movement of wastes discharged by barge dumping
2. Delineate major spectral anomalies and relate to existing waste disposal practices,
3. Provide data regarding surface circulation in the New York Bight.

* Environmental Research Institute of Michigan
(formerly Willow Run Labs., University of Michigan)
P.O. Box 618
Ann Arbor, Michigan 48107

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A preliminary analysis of aircraft and spacecraft data collected on 16 August 1972 (ERTS Image ID E-1024-15071-4, E-1024-15071-5, E-1024-15071-6) clearly shows the distribution of an acid-waste discharge, sewage sludge dump and major suspended sediment inputs into the study area. Additionally the data analysis shows the surface drift patterns of the waste inputs and major water masses at the time of observation. The data also indicate that under the sea-state conditions existing at the time of observation, the disposal of acid waste produces a suspension which tends to remain in a distinct pattern for extended periods of time.

Earlier studies of surface circulation (using drift bottles) indicate a complex circulation pattern. Adequate definition of these patterns will require synoptic coverage over a large area of the type available from satellite altitudes.

Preliminary analysis of ERTS data indicates that the remote sensing program is providing information which will contribute towards an understanding of the environmental effects of marine dumping.